Patent
Attorney's Docket No. 000348-297

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	**BOX PATENT APPLICATION**
Francis BRYSELBOUT	Group Art Unit: Not Assigned
Application No.: N/A	Examiner: Not Assigned
Filed: February 2, 2002	
For: PROCESS AND DEVICE FOR THE DETECTION OF HYDROCARBONS IN A GAS	

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination on the merits, please amend the above-identified application as follows:

IN THE SPECIFICATION:

Kindly amend the Specification as follows:

Page 1, after the title, please insert:

--BACKGROUND OF THE INVENTION--.

Page 1, line 4, delete "TECHNICAL FIELD AND PRIOR ART" and replace with:

--Field of the Invention:--.

Page 1, after line 19, please insert:

--Description of the Related Art--.

Page 2, after line 20, please insert:

--SUMMARY OF THE INVENTION--.

Page 2, line 22, please delete "STATEMENT OF THE INVENTION".

Page 4, line 29, please insert after "FIGURES" --OF THE DRAWING--.

Page 5, line 13, please insert after "OF", first instance, --THE PREFERRED--.

IN THE CLAIMS:

Please replace Claims 1-19 as follows:

1. (Amended) A process for the detection of hydrocarbons other than methane in a gas predominantly comprising oxygen, methane and said hydrocarbons other than methane, the process comprising:

- a stage of detection of the combined hydrocarbons in said gas, providing a first value for the combined hydrocarbons,
- a stage of combustion of the hydrocarbons other than methane,
- a stage of detection of methane in said gas, providing a second value,
- a stage of calculation of the amount of hydrocarbons other than methane by the difference between the first value and the second value.

2. (Amended) The process according to Claim 1, said gas comprising at least 95% oxygen.

3. (Amended) The process according to Claim 1, wherein said gas predominantly comprising oxygen, methane and hydrocarbons other than methane, said hydrocarbons other than methane are present, with respect to the methane, in a proportion on the order of a few percent.

4. (Amended) The process according to Claim 3, wherein said hydrocarbons other than methane are present, with respect to the methane, in a proportion of less than 6%.

5. (Amended) The process according to Claim 3, wherein said gas comprises less than 50 ppm of methane.

6. (Amended) The process according to Claim 3, wherein said hydrocarbons other than methane are present at a concentration of less than 5 ppm in the oxygen.

7. (Amended) The process according to Claim 1, wherein hydrocarbons other than methane are incinerated using a catalyst.

8. (Amended) The process according to Claim 7, wherein the detection is carried out by a flame ionization detector.

9. (Amended) The process according to Claim 7, wherein the hydrogen is mixed with the gas to be analysed, so that the hydrogen/oxygen ratio is between 10% and 40%.

10. (Amended) The process according to Claim 7, wherein the temperature of the catalyst is such that less than 5% of the methane present in the gas is incinerated.

11. (Amended) The process according to Claim 10, wherein the temperature of the catalyst is between 160°C and 190°C.

12. (Amended) A process for the detection of hydrocarbons other than methane in a liquid oxygen bath of an evaporator of a unit for the production of gases from the air, comprising:

- a withdrawal of a sample of liquid oxygen from the said bath,
- an evaporation of the said liquid oxygen, producing an evaporated gas,
- a process for the detection of hydrocarbons other than methane in the said evaporated gas, according to Claim 1.

13. (Amended) The process according to Claim 12, wherein the withdrawal of the sample is carried out using a pipe of a pump for raising liquid over a sampler of a lift type.

14. (Amended) The process according to Claim 12, additionally comprising a stage of triggering an alarm when the concentration or the level of hydrocarbons other than methane in the said evaporated gas exceeds a certain limit value.

15. (Amended) A device for the detection of hydrocarbons other than methane in a gas predominantly comprising oxygen, methane and said hydrocarbons other than methane, said device comprising:

- means for the detection of the combined hydrocarbons in the said gas, providing a first value for the combined hydrocarbons,
- means for the combustion of the hydrocarbons other than methane,
- means for the detection of methane, providing a second value,
- means for the calculation of the amount of hydrocarbons other than methane by the difference between the first value and the second value.

16. (Amended) The device according to Claim 15, wherein the means for the combustion of the hydrocarbons other than methane comprises a catalyst.

17. (Amended) The device according to Claim 15, wherein the means for the detection of the combined hydrocarbons and the means for the detection of methane comprises a flame ionization detector.

18. (Amended) A device for the detection of hydrocarbons other than methane in a liquid oxygen bath of an evaporator of a unit for the manufacture of gases from the air, comprising:

- means for the withdrawal of a sample of liquid oxygen from the said bath,
- means for the evaporation of the said liquid oxygen, producing an evaporated gas, and
- a detection device according to Claim 15.

19. (Amended) The detection device according to Claim 18, additionally comprising means for triggering an alarm when the concentration or the level of hydrocarbons other than methane in said evaporated gas exceeds a certain limit value.

Please add the following new Claims 20-29:

--20. (New) The process according to Claim 2, said gas comprising at least 99% oxygen.

21. (New) The process according to Claim 2, said gas comprising at least 99.5% oxygen.

22. (New) The process according to Claim 4, wherein said hydrocarbons other than methane are present, with respect to the methane, in a proportion of less than 5%.

23. (New) The process according to Claim 4, wherein said hydrocarbons other than methane are present, with respect to the methane, in a proportion of less than 4%.

24. (New) The process according to Claim 4, wherein said hydrocarbons other than methane are present, with respect to the methane, in a proportion of less than 3%.

25. (New) The process according to Claim 8, wherein the hydrogen is mixed with the gas to be analysed, so that the hydrogen/oxygen ratio is between 10% and 40%.

26. (New) The process according to Claim 8, wherein the temperature of the catalyst is such that less than 5% of the methane present in the gas is incinerated.

27. (New) A process for the detection of hydrocarbons other than methane in a liquid oxygen bath of an evaporator of a unit for the production of gases from the air, comprising:

- a withdrawal of a sample of liquid oxygen from the said bath,

- an evaporation of the said liquid oxygen, producing an evaporated gas,

- a process for the detection of hydrocarbons other than methane in the said evaporated gas, according to Claim 3.

28. (New) A device for the detection of hydrocarbons other than methane in a liquid oxygen bath of an evaporator of a unit for the manufacture of gases from the air, comprising:

- means for the withdrawal of a sample of liquid oxygen from the said bath,

- means for the evaporation of the said liquid oxygen, producing an evaporated gas, and

- a detection device according to Claim 16.

29. (New) A device for the detection of hydrocarbons other than methane in a liquid oxygen bath of an evaporator of a unit for the manufacture of gases from the air, comprising:

- means for the withdrawal of a sample of liquid oxygen from the said bath,

- means for the evaporation of the said liquid oxygen, producing an evaporated gas, and

- a detection device according to Claim 17.--

REMARKS

Entry of the foregoing amendments is respectfully requested. The Specification has been amended in order to better conform the headings to U.S. practice. Claims 1-19 have been amended to delete multiple dependencies. New Claims 20-29 have accordingly been added and correspond to the original claims.

Favorable consideration of the subject application is respectfully requested.

If there are any questions concerning this paper, or the application in general, the Examiner is invited to telephone the undersigned at his or her earliest convenience.

Respectfully submitted,

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Attachment to PRELIMINARY AMENDMENT dated February 4, 2002

Marked-up Claims 1-19

Please replace Claims 1-19 as follows:

1. (Amended) A process [Process] for the detection of hydrocarbons other than methane in a gas predominantly [or essentially] comprising oxygen, [as well as] methane and [the] said hydrocarbons other than methane, the [said] process comprising:

- a stage of detection of the combined hydrocarbons in [the] said gas, providing a first value for the combined hydrocarbons,
- a stage of combustion of the hydrocarbons other than methane,
- a stage of detection of methane in [the] said gas, providing a second value,
- a stage of calculation of the amount of hydrocarbons other than methane by the difference between the first value and the second value.

2. (Amended) The process [Process] according to Claim 1, [the] said gas comprising at least 95%[, preferably at least 99 % or 99.5 % of] oxygen.

3. (Amended) The process [Process] according to Claim 1 [or 2, the], wherein said gas predominantly comprising [or essentially comprising] oxygen, methane and hydrocarbons other than methane, [the] said hydrocarbons other than methane are

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Marked-up Claims 1-19

[being] present, with respect to the methane, in a proportion on [of] the order of a few percent.

4. (Amended) The process [Process] according to Claim 3, wherein [the] said hydrocarbons other than methane are [being] present, with respect to the methane, in a proportion of less than 6% [or than 5% or than 4% or than 3%].

5. (Amended) The process [Process] according to Claim 3 [or 4, the], wherein said gas comprises [comprising] less than 50 ppm of methane.

6. (Amended) The process [Process] according to Claim 3, wherein [one of Claims 3 to 5, the] said hydrocarbons other than methane are [being] present at a concentration of less than 5 ppm in the oxygen.

7. (Amended) The process [Process] according to Claim 1, wherein [one of Claims 1 to 6, the] hydrocarbons other than methane are [being] incinerated using [by] a catalyst [(6)].

8. (Amended) The process [Process] according to Claim 7, wherein the detection is [being] carried out by a flame ionization detector [(8)].

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Marked-up Claims 1-19

9. (Amended) The process [Process] according to Claim 7 [or 8], wherein the hydrogen is [being] mixed with the gas to be analysed, so that the hydrogen/oxygen ratio is between 10% and 40%.

10. (Amended) The process [Process] according to Claim 7, wherein [one of Claims 7 to 9, in which] the temperature of the catalyst is such that less than 5% of the methane present in the gas is incinerated.

11. (Amended) The process [Process] according to Claim 10, wherein the temperature of the catalyst is [being] between 160°C and 190°C.

12. (Amended) A process [Process] for the detection of hydrocarbons other than methane in a liquid oxygen bath [(63)] of an evaporator of a unit for the production of gases from the air, comprising:

- a withdrawal of a sample of liquid oxygen from the said bath [(63)],
- an evaporation of the said liquid oxygen, producing an evaporated gas,

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Marked-up Claims 1-19

- a process for the detection of hydrocarbons other than methane in the said evaporated gas, according to Claim 1 [one of Claims 1 to 11].

13. (Amended) The process [Process] according to Claim 12, wherein the withdrawal of the sample is [being] carried out using a pipe of a pump [(70)] for raising liquid [or] over a sampler [(61)] of a lift type.

14. (Amended) The process [Process] according to Claim 12, [either of Claims 12 and 13,] additionally comprising a stage of triggering an alarm when the concentration or the level of hydrocarbons other than methane in the said evaporated gas exceeds a certain limit value.

15. (Amended) A device [Device] for the detection of hydrocarbons other than methane in a gas predominantly [or essentially] comprising oxygen, [as well as] methane and [the] said hydrocarbons other than methane, [the] said device comprising:

- means [(8)] for the detection of the combined hydrocarbons in the said gas, providing a first value for the combined hydrocarbons,
- means [(6)] for the combustion of the hydrocarbons other than methane,

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Marked-up Claims 1-19

- means [(8)] for the detection of methane, providing a second value,

- means [(7)] for the calculation of the amount of hydrocarbons other than methane by the difference between the first value and the second value.

16. (Amended) The device [Device] according to Claim 15, wherein the means for the combustion of the hydrocarbons other than methane comprises [comprising] a catalyst [(6)].

17. (Amended) The device [Device] according to Claim 15 [or 16], wherein the means for the detection of the combined hydrocarbons and the means for the detection of methane comprises [comprising] a flame ionization detector [(8)].

18. (Amended) A device [Device] for the detection of hydrocarbons other than methane in a liquid oxygen bath of an evaporator of a unit for the manufacture of gases from the air, comprising:

- means [(61, 62, 70)] for the withdrawal of a sample of liquid oxygen from the said bath,

- means [(64, 72)] for the evaporation of the said liquid oxygen, producing an evaporated gas, and

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Marked-up Claims 1-19

- a detection device [(10)] according to Claim 15 [one of Claims 15 to 17].

19. (Amended) The detection [Detection] device according to Claim 18, additionally comprising means for triggering an alarm when the concentration or the level of hydrocarbons other than methane in [the] said evaporated gas exceeds a certain limit value.